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Rapidly growing lipoma as the syndrome of lipodystrophy in HIV-infected child.

Case report

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Abstract: Introduction: Lipomas are benign mesenchymal tumors composed of mature lipocytes grown in different parts of the body. The giant lipomas are very rare in children, however, highly active antiretroviral treatment (HAART) can increase their frequency. Case presentation: We present a case of a HIV-infected child who developed the rapidly growing lipoma in the thigh after receiving long-term HAART. Conclusion: The purpose of this report is to highlight the existence of unspecific clinical presentation of lipodystrophy syndrome as the side effect of long HAART in children

Keywords: *HIV-infected child • HAART • Lipoma*

1. Introduction

Lipomas are the most common benign tumors of the mesenchyme (2.1 per 1,000 population); they are composed of mature adipocytes and are usually subdermally located [1]. Benign fatty tumors can develop in any location; the majority occur in the upper half of the body, particularly in the trunk and the neck. Most lipomas are small, weighing only a few grams and their diameter is usually less than 2 cm [2]. However, those weighing over 200 g and exceeding 10 cm in diameter have been described in a group of adult patients as "giant lipomas" [3,4]. There are no clear criteria to diagnose giant lipoma in children, because they are very rare. Most patients affected by lipomas are in their fifth or sixth decade of life [5].

2. Case presentation

A 10-year–old girl was admitted to the Department of Infectious Diseases and Child Neurology in Poznań with leg asymmetry and a palpable tumor in the left thigh.

Her medical history included vertically transmitted human immunodeficiency virus (HIV) infection in B1 stadium diagnosed in 2002, when the girl was 2 years old.

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The viral load at that time was 1,462,980 copies/mm³, CD4 count 1541 cells/mm³, and CD8 1849 cells/mm³. Additionally, two mutations of reverse transcriptase, L41 and F215, were found in the patient's virus. The child received antiretroviral treatment with stavudine, lamivudine and lopinavir. The treatment was well tolerated. After 4 months the viral load was undetectable. The therapy was continued for the next 5 years. In January 2008, the viral load had risen to 4000 copies/mm³. When the viral rebound occurred, resistance testing was performed. Individual viral testing showed resistance to stavudine and lamivudine. The child received a new highly active antiretroviral treatment (HAART) using abacavir, efavirenz and lopinavir, which has been continued. During HAART, controls for laboratory parameters such as leucocyte, erythrocyte and thrombocyte counts, glucose and triglyceride levels, and activity of liver and pancreas enzymes were established. At no time did we detect any side effects of HAART. The last tests were performed in April, 2011.

In June 2011, the girl was admitted to hospital with leg asymmetry and a rapidly growing palpable tumor in the left thigh. The diameter of the soft, movable tumor was 5 cm (Figure 1). Ultrasonography showed a polycystic, solid lesion that was well defined from the muscles and fatty tissue. The size of the lesion was 40 by 32 by 9 mm. Magnetic resonance imaging showed non-encapsulated, fatty tissue with low-signal linear zones inside the tumor. Because of the dynamic growth of the lipoma, it was decided to have it surgically removed.

Figure 1. Presence of the lesion deforming the left thigh.

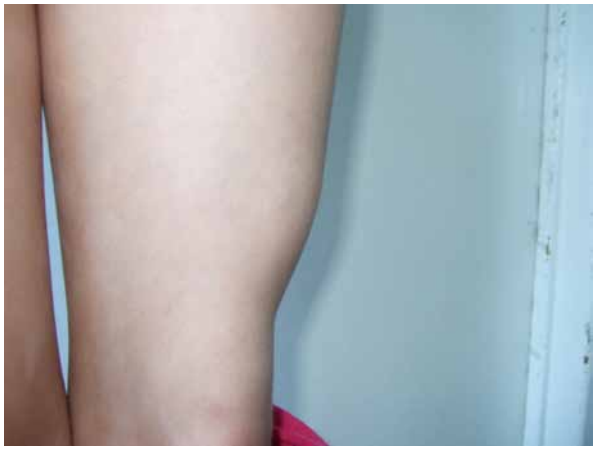
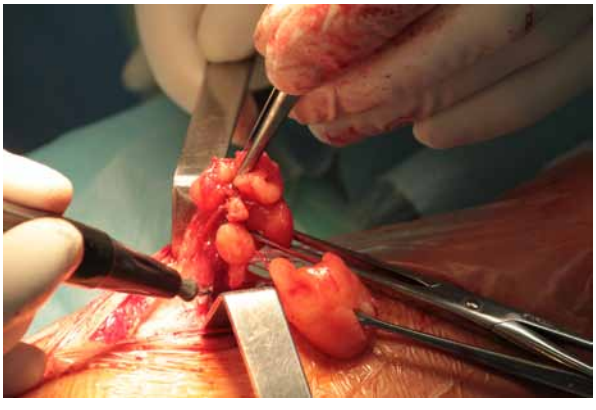


Figure 2. Surgical excison of lipoma.



In July 2011 the child was admitted to hospital to undergo the planned surgery. Clinical examination revealed increasing asymmetry of the legs. Ultrasonography revealed the polycystic mass to measure 59 by 37 by 9 mm under the skin of left thigh.

With use of a longitudinal incision on the frontal-lateral surface of the left thigh, the lesion was made accessible. The tumor was 7 cm in length and 4 cm in width. The well-defined encapsulated fatty tumor was composed of a few lobules (Figure 2).

Histopathological investigation of the excised soft-tissue mass revealed sheets of mature adypocytes containing a large amount of clear cytoplasm, with no evidence of cellular atypia or metaplasia. These features are consistent with the classical diagnosis of a lipoma.

3. Discussion

Redistribution of fatty tissue in adults and children with HIV is a feature of lipodystrophy syndrome (LDS). LDS, mitochondrial toxicity and abnormalities in bone metabolism are some of the side effects of prolonged antiretroviral therapy [6,7]. LDS occurs in children 3 years of age and older. There are three clinical patterns of fat redistribution: a) lipoatrophy (the loss of subcutaneous facial fat); b) lipohypertrophy (accumulation of fat in the abdomen, posterior neck, breast and the development of lipoma); c) a mixed form (thin extremities and central fat accumulation). Children may present with little fat redistribution after initiation or after a change of HAART [8-10]. The clinical symptoms are often associated with metabolic disorders such as dyslipidemia, hyperglyceridemia, insulin resistance and abnormalities in bone metabolism [11].

The etiopathogenesis of fat distribution in HIV-positive patients is multifactorial. Different studies have described the association between LDS and protease inhibitors and non-nucleoside reverse inhibitors (especially stavudine), age, female gender, elevated viral load, duration of HAART and high body mass index. These factors may be directly implicated in or associated with other types of environmental factors such as diet, exercise and genetics [12].

As diagnosed in our patient, a rapidly growing lipoma can be a symptom of LDS in a child receiving HAART for

8 years. It is impossible to say whether the fat redistribution in this case is connected with long-term treatment with protease inhibitors or with stavudine, since both drugs can produce such a disorder [13]. The occurrence of clinical symptoms of LDS without metabolic dyslipidemia is a rare event. However, the connection between observed pathology and HAART seems to be unequivocal. Lipomas in children are uncommon, and their normal development is slow. In our patient the lipoma was growing rapidly and imitated a malignant lesion.

We have not found in the literature any description of similar cases, because the development of body-fat distribution during childhood is a relatively new field of research. The first analyses were conducted less than 10 years ago. Until now, the clinical presentation of children's LDS was not a well known phenomenon.

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